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AUTHOR Keaten, James A.; Richardson, M. Elizabeth
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ABSTRACT

A study examined the effectiveness of an experimental system of peer assessment. Two speech communication classes consisting of 22 student groups (110 participants) served as subjects. At the beginning of the semester, students in both classes were assigned to groups. Each group was responsible for presenting a project. The groups met both inside and outside of class throughout the semester. To assess the individual contributions of group members, a peer assessment instrument was developed, consisting of six dimensions: (1) out-of-class attendance; (2) out-of-class participation; (3) in-class attendance on group days; (4) in-class attendance; (5) quality of work; and (6) interest in the project. Results indicated that students think peer assessment is an important part of the group grading process. Students also found that the peer evaluation form used was fair and valid. Findings also suggest that student attitudes regarding peer assessment are independent of their attitudes toward both group process and outcome variables. (Three tables of data are included; the peer assessment inventory is attached.) (Author/RS)

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A Field Investigation of Peer Assessment as Part of the Student Group Grading Process

James A. Keaton & M. Elizabeth Richardson

Department of Speech Communication

University of Northern Colorado

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Abstract

This paper presents the findings of a study on an experimental system of peer assessment. Two speech communication classes were studied, consisting of twenty-two (22) student groups (110 participants). At the beginning of the semester, students in both classes were assigned to groups. Each group was responsible for presenting a project. The groups met both inside and outside of class throughout the semester.

In order to assess the individual contributions of group members, a peer assessment instrument was developed, consisting of six dimensions: (1) out-of-class attendance; (2) out-of-class participation; (3) in-class attendance on group days; (4) in-class attendance; (5) quality of work; and (6) interest in the project.

Results of the study indicate that students think that peer assessment is an important part of the group grading process. Students also found that the peer evaluation form used in this study was fair and valid. This paper also investigates the relationship between participants' views of the peer assessment process and peer evaluation scores. The paper concludes with directions for future research.

Who then is free? The wise man who can govern himself.

Horace

During times in which university classrooms are becoming highly populated and professors are striving to maintain fair and effective ways to teach and assess student performance, there is a quest for the most appropriate and valuable entity of quality education. Considering that proper student evaluation is a vital component in the educational arena, it is necessary to examine the element in more detail. Two predominant grading styles exist; evaluation by the professor and peer assessment are the two prime styles.

Peer assessment, the process in which students evaluate each other, is a practice that can foster high levels of responsibility among students; the students must be fair and accurate with the judgments they make regarding their peers. According to Kane and Lawler (1978), there are three primary routes by which students can exercise their ability to assess peers. The three methods Kane and Lawler (1978) propose are peer rating, peer ranking, and peer nomination. Peer rating "consists of having each group member rate each other group member on a given set of performance or personal characteristics, using any one of several kinds of rating scales" (p. 557). Peer ranking "consists of having each group member rank all of the others from best to worst on one or more factors" (p. 557). Peer nomination

"consists of having each member of the group designate a specified member of group members as being the highest in the group on a particular characteristic or dimension of performance" (p. 557).

Those who value the more traditional evaluation-by-professor assessment method may assert that students at the university level do not need the additional burden of evaluating their peers, and some may state that many students do not have the appropriate qualifications or objectivity needed to assess their peers' performances. To justify their position, traditionalists can utilize student responses that reflect opposition toward peer assessment. "Some people may already have a bias against you so your grade suffers," and "Many students do not have the expertise to decide what other students should be graded for participation." As a result of responses such of this, educators may remain in favor of traditional evaluation methods and may consider peer assessment an exploitation or entrapment of students rather than a benefit.

To counter the traditionalistic perspective, advocates of peer assessment (e.g., Farh, Cannella, & Bedeian, 1991; Fry, 1990; Goldfinch & Raeside, 1990) express optimism regarding the practice; these scholars find that students not only accept responsibility but also evaluate more accurately than their professors. The process, particularly in small group work, does not exploit students. Instead, peer assessment allows students

to assess those with whom they work on a continual basis both in and out of the classroom.

A fundamental question when one considers using peer assessment is when peer evaluation should be used. Kane and Lawler (1978) suggest that the following conditions are appropriate for peer evaluation:

1. The existence of peer group whose members are afforded unique views of salient aspects of each other's behavior;
2. The existence of peer groups whose members are capable of accurately perceiving and interpreting the salient aspects of each other's behavior;
3. A perceived need to improve the effectiveness with which some characteristic or characteristics of peer group members are being assessed.

When some or all of these conditions are met, according to Kane and Lawler (1978), peer assessment becomes a viable way of evaluating performance; however, many variables can affect the assessment process. Fortunately, researchers have examined some of the issues relevant to the use of peer assessment. Below is a brief examination of this literature.

REVIEW OF LITERATURE

Literature regarding peer assessment comes from a variety of fields, such as psychology, business and management, speech communication, and education. An extensive review of the literature in each of these areas is not within the scope of this

paper. Instead, this paper will review three salient aspects of peer assessment: (1) systems of evaluation; (2) student attitudes toward assessment; and (3) validity of peer assessment instruments.

System of Evaluation and Attitude

In a study conducted by Fry (1990), seventy (70) first-year mechanical engineering students were placed in five (5) tutorial groups. The groups met one hour a week for the duration of one academic year. Originally, the tutorials were organized to assist the students with their studies. After receiving disappointing results from the students' midterm examinations, efforts were taken to make tutorial groups more effective. The remainder of Fry's (1990) study focuses on one of the five (5) groups and the impact of peer marking on student success.

The group in the study was observed, and attention was given to performance on assigned homework problems and peer marking that occurred in tutorial sessions. On specific due dates, students exchanged papers and compared the homework responses to the model answers and marking scheme the tutor placed on the board. Fry (1990) offered a number of advantages regarding the peer marking system: (1) students are motivated and accountable in doing homework before class; (2) students compare their efforts to the responses written on the board and, as a result, reinforce the correct answer; (3) students receive insight and reduce feelings of intimidation regarding grading process; (4)

students see input of others, and, in assessing responses of other students, they discover importance of well presented work; and (5) tutor is allowed to be the facilitator rather than the assessor during the tutorials (p.181).

Fry's study (1990) is insightful in that it displays tutoring sessions in which students become more accountable in completing their work, responsible in grading the papers of their peers, and motivated to reinforce their learning through the assessment process. Two questionnaires were administered to students in the group to confirm the positive reception of the tutorial groups on attitude regarding peer marking. Observing Fry's study (1990), one can conclude that peer marking is influential in students' learning; however, one does not know the status of the other four (4) groups that were originally discussed at the beginning of the study. Poor mid-term grades may have served as the impetus for higher quality work and learning in the latter segment of the year. It is necessary to replicate this study with more careful screening of subjects and variables to truly isolate the effects of peer marking in order to confirm the aforementioned benefits of the assessment.

Student Attitudes toward Assessment

Williams (1992) examined student attitudes regarding peer assessment. He found that the vast majority of students see benefits in peer assessment (90%); however, students found criticizing their friends to be difficult. Students also found

peer assessment to be difficult or undesirable when guidelines for evaluation are not established first. In addition to results on peer assessment, Williams found that students were realistic when evaluating their own work.

Farh, Cannella, and Bedeian (1991) examined "the impact of purpose on rating quality and user acceptance" in a study utilizing sixty-five (65) undergraduates divided into eleven (11) groups that would complete a series of three projects (p 367). Groups conducted first projects without implementing peer assessment. Students knew at the assignment of project number two that they would write up peer evaluations at the completion of the endeavor. At the end of project two, six (6) groups completed peer ratings for the purpose of evaluation or grading, and five (5) groups conducted peer ratings in order to provide developmental feedback.

A week after the students finished their projects and assessments, they each received "their own peer ratings along with the average ratings for their team" (p. 374). The students then received short questionnaires which disclosed their favor or disfavor of the peer ranking-assessment process. For students whose peer ratings were utilized for evaluation purposes, the results were lenient and on the higher side of the spectrum; Farh, Cannella, and Bedeian (1991) affirmed that peers are more relaxed in their assessment of each other if the grades are an issue.

In contrast to this data, students who conducted peer ratings for developmental purposes were more critical in their feedback. Farh, Cannella, and Bedeian (1991) stated that students are more comfortable giving critical responses on peer assessment forms if they know that their input is not jeopardizing the grades of their peers and putting their own reputation and grades in danger. Responses on the questionnaires confirmed the conclusions generated by Farh, Cannella, and Bedeian (1991). Context, either evaluative or developmental, is indeed a key component involved with the students' attitudes toward and validity of the peer rating instrument.

To conduct future studies exploring the various dimensions of the two different contexts as well as those of other contexts can be enlightening. Observing the subject distribution in the current study, one notes that individuals in the evaluative assessment condition are comprised of seven (7) female and twenty-eight (28) male subjects, and individuals in the developmental assessment condition are sixteen (16) females and sixteen (16) males. To discover if sex or gender like context is a variable worth noting, the study by Farh, Cannella, and Bedeian (1991) must be replicated with even male-female representation in all treatments.

Fedor and Bettenhausen (1989) also examined students' attitudes toward peer assessment. In particular, they look at the influence of three variables on attitudes toward peer

assessment: (1) appraisal purpose (feedback vs. grading); (2) participant preconceptions; and (3) favorability of peer ratings. Results indicated that peer evaluation is more likely to be viewed as positive when the purpose of appraisal is grading and when students initially view peer assessment as positive. Fedor and Bettenhausen (1989) note that these three variables are only a small part of the complex system of peer evaluation. Many other variables might influence the peer evaluation process:

> The nature of the work and reward system, the role of supervisors and initial perceptions may all play a part in the eventual success or failure of using peers in the evaluation process.

Although the research linking peer assessment and student attitudes gives insight regarding the effectiveness of peer assessment, more research is needed to identify the plethora of variables that might influence the process.

Validity of Peer Assessment Instruments

Goldfinch and Raeside (1990) examined ways to create the most effective peer assessment instrument that can accurately measure student performance. Goldfinch and Raeside (1990) administered peer assessment forms to approximately two hundred (200) degree students the day group project reports were due. Students were unaware that they needed to complete the form during a ten-to-twenty minute period after submitting the group project reports. The assessment form consisted of two parts:

(1) section in which student can write names of group members, excluding his or herself, who contributed most toward completion of group tasks; and (2) section in which student numerically ranks members of group, excluding self, while considering their performance in group activities and relations.

Goldfinch and Raeside (1990) developed conclusions that support the use of peer assessment in higher education. The researcher affirmed that this form of evaluation fosters an appreciation for internal awards and interpersonal relationships in the classroom. According to Goldfinch and Raeside (1990), the assessment instruments utilized in the study complemented by proposed calculations of data are highly appropriate in the educational arena. The two researchers and their teaching staff asserted the notion that subjects appeared more satisfied with school while incorporating the peer assessment process that is characteristic of Goldfinch and Raeside (1990).

To confirm student satisfaction, it would be highly advisable to administer at least one questionnaire to or interview with each subject in the study. To speculate student satisfaction can be misleading. In future studies, researchers must exercise caution in conducting and reporting experiments or observations methodically and in detail to insure data gleaned from specific variables centering on peer assessment.

METHODOLOGY

The purpose of this study was to evaluate issues related to

peer assessment. Specifically, this study proposed the following research questions:

RQ1: Do students think that peer assessment is feasible (equitable and easy to conduct) for project groups?

RQ2: What are students' attitudes regarding a specific system of peer assessment?

RQ3: Are student attitudes regarding peer assessment contingent on the dynamics of student work groups?

Participants

Participants for this study consisted of one hundred and ten (110) students from a mid-sized Western university. Students were enrolled in one of the following undergraduate classes: (1) Introduction to Speech Communication (a survey course in speech communication); or (2) Inquiry in Speech Communication (a basic course in research methodology). This pool of participants formed twenty-two (22) student groups. The assessment process was part of the class design, and specifications were given on both class syllabi.

Instruments

An instrument was developed for peer assessment entitled the Peer Assessment Inventory (PAI). The PAI consisted of six dimensions: (1) attendance at out-of-class meetings; (2) participation during out-of-class meetings; (3) attendance at in-class meetings; (4) participation during in-class meetings; (5) quality of work; and (6) interest in the project. Each of these

dimensions was assessed using a ten point scale, where one (1) indicates extremely poor and ten (10) indicates exceptional (see Appendix A).

In addition to the Peer Assessment Inventory (PAI), the Evaluation of Peer Assessment Inventory (EPAI) was developed to examine students attitudes toward peer assessment. The EPAI consisted of both Likert scales and open ended questions. The Likert scales measured students' level of agreement on the following six statements:

1. Allowing students to assess the performance of other students on a group project is fair.
2. The information on the assessment form allowed for an accurate assessment of my group members' contributions.
3. I found rating my peers to be an easy process.
4. I was satisfied with my group's interaction.
5. I was satisfied with the quality of our group's presentation.
6. I would work with my group again given the chance.

The first set of three statements pertains to the peer evaluation process, whereas the second set of three statements pertains to group dynamics.

In addition to the six Likert scales, students were asked to explain there responses to the Likert scales. For example, students would explain why they thought assessing other students was fair or unfair.

Procedures

At the beginning of the semester, students were assigned to a project group. Project groups consisted of four (4) to six (6) members. In one class (Introduction to Speech Communication), students were asked to give a twenty minute presentation on some aspect of Speech Communication, such as Organizational Communication, Interpersonal Communication, Listening, Interviewing, etc. In the other class (Inquiry in Speech Communication), students were asked to conduct a research project. The project consisted of five steps: (1) formulating a research question or hypothesis; (2) conducting a literature review; (3) selecting an appropriate method of collecting data; (4) analyzing results; and (5) offering conclusions and a reformulation of a research question or hypothesis. Student groups were given twenty minutes of class time for their presentations.

Students in both classes were given twelve (12) weeks to complete their project. Furthermore, students were provided opportunities, in class, to work on their projects. During the last three (3) weeks of class, students presented their projects in front of other class members. At the end of each presentation, group members were given a copy of the Peer Assessment Inventory (PAI). Students were asked to rate all the members of their group on each of the six dimensions; in addition, students were told that their responses would be kept

completely confidential, and they were asked not to discuss their evaluations with other class members.

During the final week of classes, students were given the Evaluation of Peer Assessment Inventory (EPAI). Students were again guaranteed that their responses would be kept completely confidential.

RESULTS

As discussed previously, this study used both quantitative and qualitative methods of data gathering. Both sets of data were generated from the Evaluation of Peer Assessment Inventory (EPAI).

Quantitative Results

The responses to the six statements of the EPAI were analyzed using three procedures: (1) frequency analysis; (2) Pearson Correlations; and (3) Principle Components analysis. A frequency analysis (see Table 1) indicated that approximately eighty-eight (88) percent of the participants thought peer assessment was fair (e.g., strongly agreeing or agreeing with statement 1 on the EPAI). In response to the assessment form (PAI), approximately seventy-nine (79) percent of the students thought the form was accurate. Approximately two-thirds of the students thought that rating peers was an easy process (67.3%).

Looking at students' attitudes toward their project groups, approximately sixty-seven (67) percent of students reported that they were satisfied with their group's interaction. Sixty-five

(65) percent reported that they were satisfied with the quality of their group's presentation, and fifty-four (54) percent said that they would work with their group again given the chance.

In addition to the frequency analysis, a correlation matrix was set up for each of the six statements (see Table 2). The strongest correlations (correlation coefficient above .4, explained variance greater than 16%) suggested the following relationships:

1. Attitudes toward group interaction are positively correlated with attitudes toward working with the group again (r=.76, p<.01);
2. Attitudes toward group interaction are positively correlated with attitudes toward the quality of the group's presentation (r=.47, p<.01);
3. Attitudes toward the quality of the group's presentation are positively correlated with attitudes regarding the willingness to work with the group again given the chance (r=.46, p<.01);
4. Attitudes toward the fairness of peer assessment were positively correlated with attitudes regarding the accuracy of the Peer Assessment Inventory (r=.43, p<.01).

In order to assess the dimensional structure of the six Likert scales, a Principle Components analysis with Varimax rotation was conducted. Dimensions with Eigen values less than one were deleted from the factor structure. The Principle

Components analysis revealed a two factor structure (see Table 3), which accounted for sixty-five (65) percent of the variation in the six statements. Factor one corresponded to students' attitudes toward their group, such as interaction, quality of presentation, and willingness to work with the group again (statements 4, 5, 6). The second factor corresponded to students' attitudes toward peer assessment, such as the fairness of peer assessment, the assessment form, and the ease of assessing peers (statements 1, 2, 3).

Qualitative Results

To conduct an accurate qualitative analysis centering on the results generated from the Evaluation of Peer Assessment Instrument (EPAI), it was necessary to type lists of the narrative statements subjects disclosed in response to the six questions. The responses were categorized into groups as a result of their question numbers and their corresponding Likert scale ratings varying from strongly agree to strongly disagree. After completing this process, it was possible to review the qualitative responses to generate meaningful categories that shed light onto the entity of peer assessment.

Regarding question one which states, "Allowing students to assess the performance of other students on a group project is fair," one discovers an array of categories based on the accuracy of peer assessment. Four lucid categories evolved from observing the similarities and differences in results. The two most

prevailing categories in the peer assessment are individual strengths and contributions, both areas which include components of accountability and responsibility.

Most common student responses are exemplified by these narratives: "Only the people within the group will know the work done by others within group"; "I feel that we all benefit by each other's strengths. This will help us gain more strengths in ourselves"; "encourages everyone to pull their weight"; "This allows for someone to not get away with not doing any work"; "It encourages members to take responsibility and be accountable for their actions"; and "It allows for group work to be evaluated fairly by members of the group who were there and know exactly what each member did." Responses such as the aforementioned affirm how student assessment of goal completion and of individual strengths and contributions stands validated; the students are in close contact with each other, and they find peer assessment a fair and valuable practice for evaluation.

Two remaining categories created from the data are assessment of performance in group dynamics and assessment of personality. Much in the same vein as the previously addressed responses, student narrative supports the accuracy of students assessing their peers in two arenas. Out of the pool of ninety-three (93) narrative responses, only four (4) responses were deemed negative; the main foci of the statements revolve on frustration created by certain unparticipating group members and

on an absence of a clear reference from which one can fairly assess his or her peers.

After receiving student feedback regarding the level of fairness implicit from the actual peer assessment process, one can observe student responses to question two centering on the accuracy of the peer assessment form itself. The largest category of students, twenty-six (26) out of sixty-nine (69) students, affirmed via narrative response that the peer assessment form is adequate (i.e., "it was specific"; "all areas were covered"; and "It was the best way to rate someone"); the students believe the instrument's inquiries are mutually exclusive, exhaustive, and equivalent. Three primary areas that must receive attention as categories are response formats, time investment, and the evil of bias.

Students who did not find the assessment form to be completely accurate expressed a desire for categories in which peers can measure levels of (1) student commitment to projects outside of group meetings both in and out of class and (2) sensitivity to subject bias (i.e., "Members don't realize the personal time put in and out of the meetings"; "Personal work for the group may be overlooked or forgotten by other members"; and "Students may have personal opinions toward each other which will interfere."). Students not only affirm concern regarding the above-mentioned entities but they also encourage a section on the form where narrative responses are invited (i.e., "It would seem

a little more narrative would be in order"; "Sometimes I wanted to explain my answer, tell why or how. But there was no room to"; "I believe there needs to be spot for additional comments for each member to give reasons why one chose to rate a member a certain way--Justify their ratings"; and "I would like to see more 'essay of short answer questions'.").

A number of students also request the process of progressive assessment, evaluation that occurs not only at the end of a project but also during the course of preparing and finalizing the work (i.e., "I think it was too vague, because one person in our group didn't do anything till the end then he/she worked hard"; and "Some indications of beginning to end may further help in the assessment. For example, one group member increased participation during the very end while another gave more input in the beginning."). One can observe from these responses that students desire the most accurate instrument to fairly assess their peers by the most comprehensive means possible.

Steering away from specific inquiries focused on levels of fairness and accuracy, question three asks students if they discovered rating their peers "to be an easy process." The majority of the responses clearly indicate that students found the assessment in this particular case may or may not be easy, but it is fair (i.e., "I call it as I see it"; "It took no time and it was fair; and "No one wants to give a person a bad grade, but fair is fair."); two other areas that command attention

centering on responses from students affirming positive feelings toward the rating process hold that time efficiency and development of responsibility are fringe benefits of the entity peer assessment.

There is a number of responses that do not display feelings of ease or fairness during the practice of peer assessment; a relatively high percentage of students find the process difficult because of subject bias and absence of expertise regarding the assessment process. Examples of responses that substantiate these conclusions are the following: "Sometimes it's hard to put your personal feelings aside and concentrate on the actual content of that persons work"; "I found my personal opinion to effect grades"; "Sometimes I was 'iffy' how critical I should be"; and "It was easy enough to fill out the form, but how does one evaluate a person who rarely attended meetings, but did well in the presentation."

Observing questions one through three, one finds the focus of student perceptions on peer assessment itself. To see if there is a possible relationship between students' attitudes toward peer assessment and group dynamics, questions four through six probe students' satisfaction within their groups. Question four initiates the quest by asking subjects if they were pleased with their group's interaction. The majority of responses affirmed that the group interaction was satisfactory (i.e., "We worked well together"; "My group was open with each other I

felt"; "We all got along which was nice; we had divided leadership so everybody was responsible for his or her part"; and "I couldn't have asked for a better group!").

Key factors that influenced the responses regarding satisfaction are balance regarding group roles and responsibilities, coordinating schedules, and frustration toward the one or two people in group who never participate. A number of students disclosed that they could have done better with foresight and an idea of what other groups were generating in the realms of content and originality (i.e., "We could have been task oriented a little sooner; "I think it could have been better but nothing the prof could have done to improve it"; and "I'm satisfied with our interaction, we did really well together, and I had a great group, but after seeing all the other groups I think we could have been a lot more creative.").

Question five is much like question four, but instead of inquiring into student satisfaction regarding group interaction, question five delves into student satisfaction of the group presentation. Students who demonstrated a high level of satisfaction in the group presentations exhibited answers focusing on positive, unified group experiences and confidence in work (i.e., "It came together well and we got a 96%!"; "Ours was the best!"; "We all kind of surprised each other - WE presented ourselves more professionally in the 'real thing'!"; and "Hey, what can I say? Perfection!").

Counter to the responses supporting evidence that high satisfaction with the presentation centers on positive group experience and confidence in work, responses expressing low satisfaction stem from individuals believing their groups could have done better to avoid negative group experience; ultimately, their groups could have placed a higher investment into the group and project to prevent incompetent work generated by poor time management and unfair workload distribution. Statements that support this view are the following: "It could've been a bit better had we taken more time to do it and consulted with the instructor"; "I know that it could have been better, we were capable of it, but I guess we didn't put in the extra effort where it was needed"; "I'm not sure, it was o.k. but my group didn't really have enough time to put quality presentation together"; "That one exception left us kind of assuming things and making decisions on our own. If she was around it would have run more smoothly I think"; and "(Name of group member) did little work in preparing. He also did little work in studying his lines. I don't think he truly cared."

Question six asks the student if he or she would work with the same group "again given the chance." Slightly less than half of the narrative responses reflect the desire to work with the same group members again (i.e., "They were very nice and helpful. We took care of each other and that's what makes a good group (team)"; and "Our group, for the most part, wanted to do well and

was on-task. Most of the group was responsible and easy and fun to work with."). Small categories under the umbrella of the desirable positive group experience include individual accountability, accommodating personalities, collaboration of different talents, and the want to work with group again with newly gained communication expertise.

The second half of the narrative responses reflect contrary views toward working with same group members on future projects. Half of the negative responses affirm poor group dynamics stemming from scheduling problems and non-directed students (i.e., "It was very hard to arrange our schedules to find time to meet"; and "There was no cohesion and group think occurred often."). The other half of the responses not favoring working with the same members are justified for reasons not evolving from poor dynamics; students desire to meet and work with new people (i.e., "I like interacting with people; it would be good to do a project with different people"; "I always like to work with new people"; "Even though I felt our group overall was productive, I'd rather work with different people-learn more from working with a variety of people (good or bad); and "Like to meet new people and work with different people rather than the same ones all semester.").

DISCUSSION

In looking at both the quantitative and qualitative results, a number of defensible conclusions may be proposed. Perhaps the

first and most important conclusion is that students think peer assessment is fair. Quantitative analysis indicates that nearly ninety (90) percent of the students thought that peer assessment was fair. Qualitative results share the same conclusion, as evidenced by student comments such as:

> "Having each person fill out an evaluation form is much better than the instructor making his own judgement, because the group members are more aware of out-of-class participation."

In addition to the notion of fairness, students view peer assessment as a <u>necessary</u> part of the evaluation process. Specifically, students affirm the necessity of peer assessment by saying that "there is no other way to truly hold individuals of each group accountable for group participation."

One additional benefit voiced by students is that peer assessment provides the opportunity to develop evaluation skills:

> "I believe in college, students should be able to practice assessing others' performance."

Furthermore, peer assessment may generate more sophisticated levels of responsibility for each student, as suggested by the following student comment:

> "We should all be adult enough to tell the truth and give appropriate ratings."

In short, students' attitudes toward peer assessment might be summarized by the following attributes: (1) fairness; (2)

necessity; (3) skill building; and (4) responsibility.

The results also suggest that student attitudes regarding peer assessment are independent of their attitudes toward both group process and outcome variables; that is to say, student attitudes regarding both interaction and performance of their project groups do not significantly influence attitudes toward the peer assessment process.

Limitations

The findings discussed above must be taken with some degree of caution. First of all, this study used one of three methods of peer assessing, namely peer review. Second, the Peer Assessment Inventory needs to be analyzed for validity and reliability. Third, participants were selected from two Speech Communication courses. This might present a limitation, because most students are Speech Communication Majors and therefore might possess more of an interest in interaction, which might influence both group dynamics and views toward peer assessment.

Directions for Future Research

Perhaps the most important direction for future research is to assess the validity and reliability of the Peer Assessment Inventory (PAI). Although students reported that the PAI allowed for "an accurate assessment" of group members' contributions, it would be interesting to evaluate the amount of agreement between members of each group.

Future research might also look at how the three methods of

peer assessment (peer review, peer nomination, and peer ratings) influence student attitudes toward assessment. Possibly the use of multiple methods of peer assessment might be investigated.

Another implication of future research is the potential for more accurate peer assessment as a result of administering evaluation forms to group members not only at the end of the project but also during the process. This change may assist students in evaluating peers most fairly by assessing recent activity and participation versus dated and more generalized input.

Regarding the potential effectiveness of peer assessment in the progressively larger classroom, it is essential to explore avenues that can allow students and instructors facilitation in the evaluation process; by observing student responses both in the current study and in current research, one finds the necessity for small group, general communication, and assessment skill development. With the correct training, instructors and students can better insure both high quality and fair assessment practices. To complement the aforementioned benefits that may result from more comprehensive peer assessment training, students may receive insight and practice regarding invaluable communication and human relations skills.

Final Note

Horace once stated that the one who is free is "he who can govern himself." Ultimately, the entity of peer assessment is

the framework through which students can govern themselves in a fair, more accurate manner. Ideally, peer assessment allows students to be free in giving honest judgment, to be free in receiving praise and criticism, and to be free to learn and embrace entities such as motivation, human relations skills, and accountability. Despite the odds of larger classroom populations and heavier burdens on students and professors, peer assessment can insure accurate evaluation and function additionally as a catalyst for learning pragmatic working and communication skills which complement the education one receives via textbooks, lectures, and projects.

Table 1
Percentage Table for EPAI Responses

EPAI Statement	Level of Agreement*				
	SA	A	U	D	SD
Allowing students to assess the performance of other students on a group project is fair.	53.8	34.6	3.8	5.8	1.9
The information on the assessment form allowed for an accurate assessment of my group members' contributions.	28.2	50.5	9.7	10.7	1.0
I found rating my peers to be an easy process.	26.0	41.3	8.7	23.1	1.0
I was satisfied with my group's interaction.	21.2	46.2	13.5	12.5	6.7
I was satisfied with the quality of our group's presentation.	25.0	40.4	17.3	16.3	1.0
I would work with my group again given the chance.	26.9	26.9	25.0	10.6	10.6

*SA = Strongly Agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly Disagree

Table 2
Correlation Matrix of EPAI Statements

	Q1	Q2	Q3	Q4	Q5	Q6
Q1	1.0000	.4275**	.2827**	.0516	.0541	.0107
Q2	.4275**	1.0000	.2477*	.2041*	.0718	.1436
Q3	.2827**	.2477*	1.0000	.3869**	.2949**	.2295*
Q4	.0516	.2041*	.3869**	1.0000	.4684**	.7627**
Q5	.0541	.0718	.2949**	.4684**	1.0000	.4563**
Q6	.0107	.1436	.2295*	.7627**	.4563**	1.0000

* p<.05
**P<.01

Table 3
Factor Analysis of EPAI Data

	FACTOR 1	FACTOR 2
Q1	-.07246	.84115
Q2	.09029	.78400
Q3	.42737	.52765
Q4	.89120	.13744
Q5	.72894	.04484
Q6	.87191	.01821

Appendix A

Peer Assessment Inventory

Directions: Write the first and last name of each individual in your group. Put your own name first. Rate each group member including yourself 1-10 (1 is low; 10 is high) on each of the following items:

OC Attendance: Did the person attend meetings scheduled outside of class?

OC Participation: Did the person actively participate during out-of-class meetings?

IC Attendance: Did the person attend meetings scheduled during class time?

IC Participation: Did the person actively participate during in-class meetings?

Work: Did the person prepare for meetings (reading, research, generate ideas, etc.)?

Interest: Did the person show a genuine concern for both the project and welfare of the group?

Name	OC Attend.	OC Partic.	IC Attend.	IC Partic	Work	Interest
_____	___	___	___	___	___	___
_____	___	___	___	___	___	___
_____	___	___	___	___	___	___
_____	___	___	___	___	___	___
_____	___	___	___	___	___	___
_____	___	___	___	___	___	___
_____	___	___	___	___	___	___

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